

### REMARKS

3. Claim 7 is objected to because of the following informalities: "the message invalidated" should be "the message is invalidated". Appropriate correction is required.

4. Claim 14 is objected to because of the following informalities: "the segments constants obtain upon receipt of the message" should be reworded to read "the segment-constant is obtained upon receipt of the message ". Appropriate correction is required.

Claims 7 and 14 have been amended.

5. Claims 15 and 25 are objected to because these claims do not further limit the independent claims in which they are dependent on, claims 11 and 23 respectively. Appropriate correction is required.

Claims 15 and 25 do further limit independent claims 11 and 23, respectively. For example, Claim 11 recites "a modulo unit to modulo the accumulated-remainder by a generator polynomial to obtain the cyclic redundancy code for the message," whereas claim 15 recites "wherein the modulo unit divides the accumulated-remainder by the generator polynomial to obtain the cyclic redundancy code." Note that the term "divide" (recited in claims 15 and 25) is not the same as the term "modulo" (recited in claims 11 and 23).

#### **Claim Rejections -35 USC §112**

6. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

##### **Claim 14:**

This claim recites the limitation "the segments constants" in line 1. There is insufficient antecedent basis for this limitation in the claim. This should read "the segment-constants".

Claim 14 has been amended.

#### **Claim Rejections -35 USC §102**

7. Claims 1-6, 8, 10, 11-15, 17-25, 35-37, 39 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Christensen et al. (US 5,951,707) hereinafter Christensen. **Claims 1, 11, 17, 23, 35 and 39:**

Christensen teaches a communication system that includes a Transmission Network 10 interconnected by a plurality of ATM Links 14 to respective Data Terminal Equipment 12. (Col. 2, ll. 57-67, col. 3, ll. 1-6).

*"separating the message into a plurality of segments;"*

Christensen teaches system partitions the ATM packet into ATM cells which are forwarded to the ATM Adapter 22 for further processing. (Col. 3, ll. 25-32).

*"multiplying a remainder for each segment by a segment-constant based on a*

*generator polynomial to obtain a plurality of segment-remainders;"*

Christensen teaches in order to calculate the CRC for a packet, the partial CRC from the hardware is multiplied by the corresponding fixed remainder in the table and a running sum of all the products of the partial CRCs and fixed remainders are taken.

*"accumulating the segment-remainders to obtain an accumulated-remainder;"*

Christensen teaches each partial CRC is multiplied by the appropriate  $R_i$  and adding the result to the running sum (accumulated-remainder).

*"moduloing the accumulated-remainder by the generator polynomial to obtain the cyclic redundancy code for the message."*

Christensen teaches the remaining sum is then divided by two's complement to find the CRC for the packet. Christensen also teaches a two's complement division (moduloing) of this result yields the packet CRC. (Col. 4, ll. 5-32).

Claims 2, 12 and 36:

*"moduloing the segments by the generator polynomial to obtain the remainder for each segment"*

Christensen teaches the processor calculates the packet CRC for a packet from the partial CRCs associated with ATM cells of the packet, where each partial CRC associated with an ATM cell of a packet is multiplied by an appropriate  $R_i$ , where  $R_i$  represents a fixed remainder. (Col. 2, ll. 9-13).

Claim 1

Christensen does not disclose or suggest "moduloing each segment by a generator polynomial to obtain a remainder for each of the plurality of segments," as now recited in amended claim 1. What Christensen discloses is calculating partial CRCs for ATM cells of a packet, and calculating the CRC for the packet based on the partial CRCs.

"Moduloing each segment by a generator polynomial" (as recited in claim 1) is different from calculating the CRC of each segment. Calculating a partial CRC for an ATM cell involves multiplying the ATM cell by  $X^{n-k}$  prior to dividing the cell by a generator polynomial, where " $n-k$ " is the degree of the generator polynomial. Christensen incorporates by reference U.S. patent 3,874,430 (see col. 4, lines 20-24 of Christensen), which discloses that the CRC of a message  $G(X)$  can be obtained by dividing  $X^{n-k} G(X)$  by a generator polynomial  $P(X)$ , in which the remainder  $R(X)$  is the CRC of the message. (col. 1, lines 32-54 and col. 2, lines 10-11 of the '430 patent)

If the examiner contends that the "ATM cells" of Christensen correspond to the "segments" of claim 1, then Christensen discloses calculating the CRC of each segment using a generator polynomial, but does not disclose or suggest "moduloing each segment by a generator

polynomial to obtain a remainder for the segment.” Moduloing a segment involves applying a modulo operation on the segment, in contrast to multiplying the segment by  $X^{n-k}$  prior to dividing by the generator polynomial, as taught by Christensen.

Claim 1 would not have been made obvious by Christensen because Christensen does not provide a motivation to “modulo each segment by a generator polynomial” in lieu of calculating the CRC of each segment.

Claims 2-10 are patentable for at least the same reasons as claim 1.

#### Claim 11

Christensen does not disclose or suggest “a modulo unit to modulo each segment of the message by a generator polynomial to obtain a remainder for each of the plurality of segments,” as now recited in amended claim 11, for at least similar reasons as claim 1.

Claims 12-16 are patentable for at least the same reasons as claim 11.

#### Claim 17

Christensen does not disclose or suggest “multiplying each segment by a segment-constant based on a generator polynomial to obtain a plurality of segment-remainders,” as recited in claim 17. Christensen discloses multiplying the partial CRC of each ATM cell with a fixed remainder (col. 2, lines 11-13). If the examiner contends that the “ATM cells” in Christensen correspond to the “segments” in claim 17, then Christensen does not disclose or suggest “multiplying each segment by a segment-constant,” as recited in claim 17.

Claims 18-22 are patentable for at least the same reasons as claim 17.

#### Claim 23

Christensen does not disclose or suggest “a multiplier to multiply each segment by a segment-constant to obtain a plurality of segment-remainders,” as recited in claim 23, for at least similar reasons as claim 17.

Claims 24-26 are patentable for at least the same reasons as claim 23.

Any circumstance that the applicant has addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner. Any circumstance that the applicant has made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims. Any circumstance that the applicant has amended a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

Enclosed is a \$120.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing attorney docket 10559-576001.

Respectfully submitted,

Date: 6/16/2005

Rex Huang  
Rex I. Huang\* for  
Denis G. Maloney, Reg. No. 29,670

Fish & Richardson P.C.  
225 Franklin Street  
Boston, MA 02110-2804  
Telephone: (617) 542-5070  
Facsimile: (617) 542-8906

*\* See attached document certifying that Rex Huang has limited recognition to practice before the U.S. Patent and Trademark Office under 37 CFR § 10.9(b).*